Schedule 3

Decentralized Platform and Network Management Services

to

Request for Proposal
for the
Provision of IT Infrastructure Operations
and Managed Workplace Services
[UNHCR RFP/2018/1068]
(the "RFP")

effective _____ 2018

between

The Office of the United
Nations High Commissioner
for Refugees

and Contractor

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1 Introduction

1.1. This Schedule 3 sets forth Contractor's roles and responsibilities in providing Field Office support and maintenance services including the provision of support and administration services for server hardware, operating systems, networks, and other software products related to all servers located at the Sites. As the managed LAN/WAN network is extended during the term of the Agreement to additional UNHCR Field Offices, Contractor shall provide, at UNHCR's request, support and maintenance services to the UNHCR Field Offices with local server installations.

1.2. Unless the context otherwise requires, capitalized terms used but not defined in this Schedule 3 shall have the meaning given to them in Schedule 1 (Technical Definitions) or the Agreement.

1.3. For purposes of this Schedule 3, the following terms shall have the following meanings:

(a) "Sites" shall mean the UNHCR offices that are classified as locations other than those centralized Data Centres described in Schedule 2 (Data Centre Platform and Network Management Services).

(b) "Site Core" infrastructure comprises equipment critical to the operation of the site, typically located in the site's server room, and consisting of edge devices, servers, and other site shared components.

(c) "Site LAN" infrastructure comprises all other site equipment not part of the "Site Core."

2 Services

2.1. General

Decentralized Server and Network Management Services are the services and activities required to support the UNHCR Site servers, networks, supporting infrastructure and security required to deliver the Services and meet Service Level Requirements (SLRs).

The Contractor-supported Services environments include Microsoft Windows Server (and associated services), encompassing a mixture of physical and virtual servers, Cisco network infrastructure and supporting Software (e.g. operating systems, tools, utilities, and applications).

The following are the key high-level Service objectives the UNHCR expects to achieve through outsourced Decentralized Server and Network Managed Services:

- Provide support and maintenance for reliable and secure Services that meet SLRs and therefore UNHCR business needs;
- Acquire Services that leverage best practices and achieve market price performance;
- Provide automated reporting mechanisms to ensure performance meets requirements; and
- Provide support for the UNHCR migration of applications and services to the Cloud.

Contractor shall provide the personnel, skills, and controls to efficiently and effectively support the UNHCR Site applications and infrastructure inclusive of all network

infrastructure, server hardware, virtual machines, operating systems, tools, and other software products related to all infrastructure in scope in the Sites, including documentation by following ITIL Service Management processes and as per guidelines and policies as defined or agreed by UNHCR. The sub-services, as more fully described in this Section 2, include:

Decentralized Server Scope	Sites
Servers	
Windows and Linux Servers	Included
Hypervisor Hosts	Included
Core Infrastructure Maintenance and Support	
Systems and storage monitoring	Included
Systems and storage event management	Included
System hardware management and support	Included
System software management and support	Included
System housekeeping services	Included
Storage management and capacity planning	Included
Backup and recovery services	Included
Server reporting	Included
Server and storage documentation	Included

Decentralized Network Management Scope	Site Core	Site LAN
Network Device Configuration, Maintenance and Support		
High-End Edge Devices (3921/2921 ISR Routers, ASA/CheckPoint Firewalls)	Included	N/A
Low-End Edge Devices (1921 ISR, Meraki, etc.)	Included	Included
Load Balancers (KEMPs)	N/A	N/A
Core Switches	Included	N/A
Distribution/Access Switches	N/A	Included
IDS/IPS Devices	Included	N/A
Wireless Access Controllers	Included	N/A
Wireless Access Points	N/A	Included
Traffic Shaping/Optimizing/Filtering Devices	Included	N/A
Modems/Microwave Links	Included	Included
Network Printers	N/A	Included
Network Management Services		
Level 2 remote network support, maintenance, troubleshooting and break-fix	Included	Included
Level 2 remote support coordination of local UNHCR ICT resources	Included	Included

Decentralized Network Management Scope	Site Core	Site LAN
Level 2 dispatch	N/A	N/A
LAN Administration		
IP Addressing	Included	N/A
DNS	Included	N/A
DHCP	Included	N/A
Wireless Network	Included	N/A
VLAN Administration	Included	N/A
Cable and Patch Management	Coordinate	N/A
Other		
Network Security	Included	N/A
Device Installation/Deinstallation	Coordinate	N/A
Monitoring	Included	N/A
Event Management	Included	N/A
Reporting	Included	N/A
Documentation	Included	N/A
Asset Management	Included	N/A
Change Management	Included	N/A

2.2. Personnel

Providing trained and qualified personnel Is essential to effective service delivery.

Contractor shall:

(a) Provide personnel with technical skills and competencies that allow for effective delivery of Services;

(b) identify one member of the Site support team as the lead; this person will be part of the Key Personnel as per Schedule 15 (Contractor Personnel Provisions);

(c) understand ITIL processes of Incident, Problem, Change, Release & deployment, and Asset and configuration management;

(d) be familiar with techniques of customer interaction and high standards of customer support;

(e) be familiar with UNHCR standard hardware devices;

(f) understand the UNHCR service level agreement and prioritization of Incidents and Service Requests;

(g) have been on-boarded with knowledge of the UNHCR business, mission, security awareness and policies; and

(h) have extensive experience in deep field ICT support in developing countries.

2.2.1 Windows Server Personnel

Contractor shall ensure that:

(a) for Level 1 Windows Server support, personnel are to possess a minimum of Microsoft Certified Solutions Associate (MCSA) certification in Windows Server 2012 or equivalent to demonstrate the skills necessary to administer Windows servers;

(b) for Level 2 Windows Server support, personnel are to possess a minimum of Microsoft Certified Solutions Expert (MCSE) certification or equivalent, to demonstrate the skills necessary to operate an efficient data center, with expertise in identity management, systems management, virtualization, storage, and networking;

(c) have team competencies in UNHCR server technologies, including but not limited to:

- Microsoft Windows Server 2008, 2012, and 2016 and future released version of Microsoft Server editions;
- Microsoft Hyper-V;
- Microsoft Domain Name Service (DNS),
- Microsoft Dynamic Host Configuration Protocol (DHCP);
- Microsoft File and Storage Service;
- Microsoft Windows Server Update Services (WSUS).

(d) have team competencies in UNHCR direct attached storage solutions, including but not limited to:

- RAID configurations and RAID controller management;
- Flash Memory or SSD Storage appliances or expansion cards;
- SAS, SATA connectivity, or Fiber Channel;
- Microsoft Storage Spaces;
- Generic NAS solutions (e.g. FreeNAS);
- CIFS, SMB, and NFS protocols.

2.2.2 Network Personnel

Contractor shall ensure that:

(a) for Level 1 Network support, personnel are to possess Cisco Certified Network Administrator (CCNA) Routing and Switching certification or equivalent to demonstrate the skills necessary to administer devices on small or medium-sized networks; and

(b) for Level 2 Network support, personnel are to possess Cisco Certified Network Professional (CCNP) Routing and Switching certification or equivalent to demonstrate the ability to plan, implement, verify, and troubleshoot local and wide-area enterprise networks, and work collaboratively with specialists on advanced security, voice, wireless, and video solutions.

3 Site Core Infrastructure Services

3.1. Core Infrastructure Support and Maintenance

Site Core Infrastructure Support and Maintenance are those activities associated with the provisioning and day-to-day management of the Site server room or network edge infrastructure providing a stable Server, WAN, MAN, and Internet connectivity to the site; and effectively and efficiently performing procedures to ensure Services meet Service Level Requirements (SLRs) and requirements.

Contractor shall:

(a) Maintain a stable Core infrastructure in order to achieve the Service Levels set forth in Schedule 10 (Service Level Requirements);

(b) provide remote support and maintenance for all Core Infrastructure elements and systems contained within the Sites, including but not limited to:

(i) Site Servers, and other servers hosting local applications;

(ii) Network Attached Storage devices (NAS);

(iii) Network edge devices consisting of modems, routers, firewalls, IDS and IPS appliances, traffic shaping and bandwidth optimizers, proxy, or any integrated combination of them;

(iv) Core network switches;

(v) Point-to-Point links (Fiber, Copper, and Microwave Links); and

(vi) Wireless LAN Controllers.

(c) perform routine administration and maintenance of the core infrastructure, and to this effect shall:

(i) undertake preventive and corrective maintenance in order for all systems to function and services to be delivered;

(ii) ensure that all Problems are raised and logged centrally;

(iii) ensure that all products and tools that support operations comply with the defined technical standards, policies, and procedures, and with Applicable Law;

(iv) proactively inform UNHCR if the operational environment at Sites are unsuitable and action is required;

(v) provide interface with relevant UNHCR teams to help ensure the fitness of the Sites and operational environment conditions;

(vi) maintain and manage the logs of all system accesses;

(vii) maintain a record of inventory of spares for critical equipment, either on-site, in country or in regional depots; and

(viii) prepare and update standard operating procedures (SOPs).

(d) coordinate with Third Party vendors as needed to perform these activities.

3.2. Systems and Storage Monitoring

Systems and Storage Monitoring means those functions associated with facilitating the proactive monitoring and incident alerting for Site infrastructure and operating platforms

supporting UNHCR business applications and data, as well as the full management and administration of the management and monitoring tools.

Contractor shall ensure that all system monitoring functions are periodically performed including:

(a) maintain Site system management tools and proactively monitor the environment characteristics (e.g., availability, performance, incidents, issues and events) and identify, correlate, report and resolve incidents and problems according to prescribed SLRs;

(b) provide on-going, proactive, and scheduled console monitoring of Site infrastructure, physical servers, virtual servers, appliances, and storage devices;

(c) configure alerts, thresholds, and monitoring for uptime and performance;

(d) respond to alerts and system messages, escalate and take corrective action as required;

(e) develop and maintain standard automated scripts to perform monitoring of UNHCR servers and storage;

(f) provide troubleshooting and escalation of Problems in the Sites computing environments;

(g) provide preventative measures, proactive monitoring, and system self-healing capabilities to limit outages that impact Services delivery;

(h) identify and report Problems including system, file, storage, backup, and agreed critical resources to be monitored; and

(i) resolve or assist in resolving incidents in accordance with SLRs and escalate to third parties and UNHCR as required.

3.3. Systems and Storage Event Management

Systems Event Management means those functions associated with managing systems events through their life cycle, including detecting events, analyzing them, and determining the appropriate action. Systems event management services include monitoring and logging the health and performance of data center servers and storage components across the UNHCR enterprise.

Contractor shall:

(a) Work collaboratively with UNHCR to design and implement a comprehensive set of automated alerts and alert thresholds that span the enterprise;

(b) integrate monitoring solutions into event management tools and processes;

(c) review thresholds and provide feedback on areas of concern;

(d) create automated Incident tickets for events that exceed acceptable thresholds;

(e) collect, correlate, and analyze event data and make recommendations for service improvements; and

(f) provide read access to event monitoring and correlation reporting tools.

3.4. Systems Hardware Management and Support

System Hardware Management and Support are those activities associated with continually maintaining reliable and secure physical assets across all in-scope platforms. For the scope of this schedule, such support will be conducted remotely leveraging remote access technologies provided by hardware vendor (e.g. ILO, SSH, etc.).

Contractor shall:

(a) Provide support and administration services for all server hardware including but not limited to:

  (i) patches for server hardware firmware and basic input/output system (BIOS); and

  (ii) updates to server hardware firmware and BIOS.

(b) coordinate upgrades to server hardware;

(c) provide remote hardware support, including configurations for equipment;

(d) provide planning and installation coordination of new equipment;

(e) provide plan and coordination of de-installation of old equipment; and

(f) manage and liaise with third party suppliers of server hardware, inclusive of coordination and resolution of manufacturer hardware warranty break-fix events;

(g) produce and maintain a capacity plan covering all systems and proactively inform UNHCR of the need for any changes;

(h) perform a periodic health check on all hardware; and

(i) maintain a list of all Users with system level privileges for remote console access (e.g. HP ILO); and

(j) for Sites with on-site Contractor staff, provide touch labour.

3.5. System Software Management and Support

System Software Management and Support are those activities associated with continually maintaining reliable, available, and secure physical and virtual servers across in-scope operating platforms, including Windows Server, Linux, and related Middleware requiring privileged OS access to manage.

Contractor shall:

(a) provide support and administration services for all operating systems including installation, maintenance, and monitoring of the products;

(b) perform routine upgrades to operating systems (OS) and related middleware on agreed schedules and during agreed maintenance times;

(c) perform proactive maintenance of server OS and related middleware to minimize impact of any potential shortcomings during agreed maintenance times;

(d) identify OS and related middleware patches, fixes, updates, and service packs for deployment and present for UNHCR consideration and approval;

(e) ensure that appropriate approval is obtained from UNHCR prior to application of any vendor patches and/or upgrades;

(f) perform monthly patching of production and non-production servers on the agreed schedule;

(g) provide monthly reports on patching of servers to include: patches and fixes deployed and metrics of success and failure of deployment;

(h) manage and liaise with Third Party suppliers for provision of OS software;

(i) deploy, configure and secure OS and related middleware in use by UNHCR to vendor recommended best practice or other agreed standards;

(j) ensure that any software security related patches for OS, and related middleware, or other ancillary software is deployed in an agreed timely manner;

(k) implement monitoring of all OS and related middleware;

(l) configure data encryption settings for storage, backup and other relevant services;

(m) maintain a list of all Users with system level privileges for all Operating System or related middleware access;

(n) ensure all certificates are renewed and installed; and

(o) perform all system changes in accordance with the agreed UNHCR Change Control Procedure.

3.6. System Housekeeping Services

System Housekeeping Services are those activities associated with continually maintaining efficiently performing operating platforms, including Windows Server, Linux, and related Middleware requiring privileged OS access to manage.

Contractor shall:

(a) ensure that all system administration functions are periodically performed including:

(i) system / file cleanup; and

(ii) server reboot as needed during agreed outage windows.

(b) Contractor shall also:

(i) maintain OS level firewall rules and policies;

(ii) perform periodic vulnerability scanning, intrusion detection testing and remediation; and

(iii) monitor supplier websites for critical security guidelines, alerts and patches.

3.7. Storage Management and Capacity Planning

Storage Management and Capacity Planning are those activities associated with continually maintaining reliable, available, accessible, and secure storage devices across all in-scope platforms.

Contractor shall provide managed storage and related services to include:

(a) provide input into UNHCR storage requirements (e.g. performance, level of data segregation, tiered storage, data protection methods, reliability, encryption, security, scheduling, access control)

(b) document and maintain procedures to meet UNHCR and requirements and SLRs;

(c) create, configure, and assign storage space to servers and services;

(d) reallocate of storage;

(e) ensure storage capacity monitoring including alerting when utilization exceeds prescribed levels; and

(f) manage and liaise with third party suppliers of storage hardware, inclusive of coordination and resolution of manufacturer hardware warranty break-fix events.

3.8. Backup and Recovery Services

Managed Backup and Recovery (BAR) Services are those activities associated with the protection, restoration, and continuity of UNHCR systems and data.

Contractor shall provide managed Backup and Recovery (BAR) services to include:

(a) Provide input into backup and recovery requirements (e.g. performance, backup, recovery, archival, data retention, reliability, encryption, security, scheduling, access control);

(b) operate a data backup and recovery service for the Site Servers, either for on-site or off-site backup, in accordance with the UNHCR approved backup and recovery policy, data retention policy, and the Service Levels;

(c) align the backup and recovery services with UNHCR Disaster Recovery and Business Continuity Policy including agreeing and maintaining the backup policy and procedures in line with UNHCR standards and Service Levels;

(d) back-up the systems according to the mutually agreed backup schedule. Once the back-up schedule has been authorized by UNHCR, Contractor shall set up, schedule and carry out relevant back-ups of all User and system data that is held on the servers according to agreed backup schedules with UNHCR;

(e) in the event of a backup failure, coordinate the remediation and management of back-up media at the Site(s) and in the backup storage devices in accordance with the backup policy and procedure;

(f) recover lost or damaged files, data, and systems as required from backup media, or as requested by UNHCR;

(g) carry out replacements of backup media in line with the manufacturers' guidelines and/or diagnostic information produced as a result of backup and recovery processes;

(h) coordinate the recycling of media at end of agreed retention period where operationally desirable (e.g. wear and tear) according to policy agreed with UNHCR;

(i) ensure that data recovery is tested on a regular basis to verify integrity of backups and back-up media according to an agreed schedule with UNHCR; in the event of test failures, Contractor shall notify UNHCR and prescribe a mitigation plan, then retest until success;

(j) ensure ongoing capability to recover archived data from media;

(k) document, maintain, and test end-to-end system recovery processes; and

(l) coordinate with local ICT Support staff for the archiving of data media at secure offsite storage locations.

3.9. Server Reporting

Server Reporting services are those activities that provide information to both UNHCR and Contractor to allow for the effective performance measurement and governance of the Data Centre and associated managed services.

Contractor shall:

(a) Provide regular performance monitoring reports Schedule 10 Appendix B (Reports) detailing all relevant system metrics server as agreed with UNHCR and in accordance with Schedule 14 (Contract Governance), including:

(i) Server performance by system, virtual machine and hypervisor host, covering CPU, Memory, I/O and other key server metrics;

(ii) Storage performance by system, virtual disk, volume and storage aggregate, covering capacity, usage and I/O metrics such as latency, reads, and writes;

(iii) Backup performance by job, source system, and target media, each covering volume, usage, capacity, duration, and I/O metrics; and

(iv) Event, Incident, and Problem handling by system, server, storage and backup, covering relevant resolution and handling metrics.

(b) provide input into the capacity planning exercise to ensure that the Site infrastructure is sized at the level required for the Services to be provided.

(c) on request by UNHCR, produce ad-hoc reports related to Site Server service management aspects.

3.10. Server and Storage Documentation

Server and storage documentation services are those activities associated with continually developing, revising, maintaining, reproducing, and making server infrastructure information securely accessible on an as-needed basis.

Contractor shall:

(a) Recommend standard server documentation types and content;

(b) develop and maintain server documentation that meets UNHCR requirements;

(c) provide documentation to UNHCR in electronic format; and

(d) store and maintain all documentation in a designated repository. Some of the document types specific to this Schedule 3 include:

(i) server specifications;

(ii) storage specifications; and

(iii) as-built documentation for all physical and virtual devices that are deployed in development, test, QA, production, and other technical environments.

3.11. Network Support and Maintenance

Network support and maintenance are the activities associated with the provisioning and day-to-day management of the core network infrastructure.

Contractor shall:

(a) Perform the on-going support and delivery of all core networks, and ensure end-User and server connectivity in order to achieve the Service Levels specified for all Services;

(b) perform maintenance on all Site core network infrastructure components in line with the equipment manufacturers' and/or UNHCR guidelines and ensure that firmware is kept current and security patches are applied. For these purposes, network equipment components include:

- (i) modems and other serviceable customer premises equipment (CPE) for all connectivity external to the office;
- (ii) routers, firewalls, proxies, and load balancers devices;
- (iii) core switches;
- (iv) IDS and IPS devices;
- (v) Wireless LAN controllers;
- (vi) point-to-point microwave link devices;
- (vii) traffic shaping, traffic prioritization, traffic optimization, and content filtering devices;
- (viii) other LAN services and components comprised of monitoring software and scripts, networking protocols, address management, and name resolution services; and
- (ix) any integrated physical or virtual appliance containing one or more of the above (e.g. Meraki or ISR).

(c) coordinate the installation / de-installation and testing as needed of all core network devices and related changes in accordance with the procedures provided by Contractor and approved by UNHCR, updating of the relevant documentation to reflect the changes, and informing UNHCR's Global Service Desk of the impact of the Change.

(d) coordinate the management of the core cabling and patch panels, including patching to resolve problems or reconfigure the LAN;

(e) ensure that any maintenance action leading to a scheduled outage or a noticeable degradation of service is planned via the Change Control Procedure in order to minimize disruption to the service;

(f) develop Contractor Network Operations policies that meet UNHCR requirements and adhere to UNHCR policies;

(g) develop and recommend standard Network Operations Procedures for UNHCR approval; maintain the Approved Network Operations Procedures manual;

(h) perform day-to-day Network Operations and Administration Services activities for in scope equipment including any break-fix activities;

(i) coordinate the management of network Assets in accordance with UNHCR policies, standards and procedures (including security oversight and Change Management policies and procedures);

(j) coordinate and implement the management and provision of proactive and reactive maintenance on core network Assets;

(k) manage, respond, and implement Service Requests and provide IMACs for core network components;

(l) coordinate network administration activities through defined Change Management processes;

(m) support provisioning and de-provisioning core network device account activities (e.g., administrative accounts) and maintain associated history logs as required; and

(n) implement access and authentication controls relating to the management and configuration of all devices of the core network.

(o) support activities related to UNHCR- or third party-planned and unplanned outages (e.g., post-power outage startup activities, UNHCR emergency preparedness exercises or Incidents, recovery).

(p) allocate core network device IP addresses when necessary and maintain the register of used and available IP addresses at each site;

(q) Manage and support wireless LAN controllers and Access Points;

(r) Ensure Site security policies are enforced at field level through proper configuration of network devices:

(i) maintain firewall or other device rules and policies;

(ii) perform periodic vulnerability scanning, intrusion detection testing, and remediation; and

(iii) monitor supplier websites for critical security guidelines, alerts and patches, and the implementation of such recommendations.

3.12. Network Monitoring

Contractor shall provide Network Monitoring activities associated with the proactive monitoring and alerting of network performance and management information

Contractor shall:

(a) If necessary, integrate Contractor's standard Network Monitoring Services into UNHCR Incident and Problem Resolution procedures;

(b) develop Network Monitoring Services policies that meet UNHCR requirements and adhere to UNHCR policies;

(c) develop, document, and maintain Network Monitoring Services procedures that meet UNHCR requirements and adhere to UNHCR policies;

(d) provide procedures to UNHCR for review, input, and approval;

(e) manage current UNHCR standard and approved tools, or provide and manage automated tools for monitoring all network parameters and metrics from Contractor's Network Operations Center (NOC);

(f) implement measures and provide proactive analysis of local core network data and reports to limit network Outages and optimize UNHCR's bandwidth utilization;

(g) proactively monitor current local network utilization and provide information to UNHCR for use in determining future capacity requirement;

(h) monitor, operate, perform Problem determination, alert, and repair for in-scope network environments on a 24x7 basis, including for Service Outage, loss of connection and specific performance indices by using UNHCR provided tools;

(i) monitor core network traffic, including but not limited to QoS parameters, optimization, protocols, and other network related application or service parameters;

(j) monitor core network device health and utilization, covering CPU, memory, temperature, power and other relevant metrics or error levels unless otherwise agreed upon by UNHCR;

(k) monitor core network LAN ports, covering peak utilization, average utilization, latency, packet loss, jitter, and any other relevant metrics or error levels unless otherwise agreed upon by UNHCR;

(l) perform remote core LAN analysis diagnostics and remote troubleshooting; and

(m) manage Service Requests and coordinate local ICT resources as directed by UNHCR.

3.13. Network Event Management

Network Event Management means those functions associated with managing core network events through their life cycle, including detecting events, analyzing them, and determining the appropriate action, as per ITIL definition of event management. Network event management services include monitoring and logging the health and performance of the network and network components across the office and toward the WAN.

Contractor shall:

(a) Work collaboratively with UNHCR to design and implement a comprehensive set of automated alerts and alert thresholds that span the enterprise;

(b) integrate monitoring solutions into event management tools and processes;

(c) configure and maintain all core network devices for log collection as per UNHCR SysLog processes and tools;

(d) review thresholds and provide feedback on areas of concern;

(e) create automated Incident tickets for events that exceed acceptable thresholds;

(f) collect, correlate, and analyze event data and make recommendations for service improvements; and

(g) provide read access to event monitoring and correlation reporting tools.

3.14. Network Reporting

Contractor shall:

(a) Provide regular performance monitoring reports Schedule 10 Appendix B (Reports) on core network infrastructure including:

(i) network traffic, including but not limited to QoS parameters, optimization, protocols, and other network related application or service parameters,

(ii) network device health and utilization, covering CPU, memory, temperature, power and other relevant metrics or error levels unless otherwise agreed upon by UNHCR;

(iii) network LAN ports, covering peak utilization, average utilization, latency, packet loss, jitter, and any other relevant metrics or error levels unless otherwise agreed upon by UNHCR; and

(iv) Event, Incident and Problem handling by device, application, or service covering relevant resolution and handling metrics.

(b) provide input into the capacity planning exercise to ensure that the networks are sized at the level required for the Services to be provided.

3.15. Network Documentation

Network Documentation Services are those activities associated with continually developing, revising, maintaining, reproducing, and making secure network infrastructure information securely accessible on an as-needed basis.

Contractor shall:

(a) Recommend standard network documentation types and content;

(b) develop and maintain network documentation that meets UNHCR requirements; requesting relevant input from local ICT support;

(c) provide documentation to UNHCR in electronic format; and

(d) store and maintain all documentation in a designated repository. Some of the document types specific to this Schedule 3 include:

(i) Network system specifications and physical and logical network topologies; and

(ii) as-built documentation for all core network devices that are deployed in development, test, QA, production, and other technical environments.

4 Site LAN Infrastructure Services

4.1. LAN Infrastructure Support and Maintenance

Site LAN Infrastructure Support and Maintenance are those activities associated with the provisioning and day-to-day management of the Field Office local area network not located in the server room or related to WAN, MAN, or Internet connectivity.

Contractor shall:

(a) Provide remote support to local ICT resources to ensure a stable Site distributed infrastructure in line with the Service Levels set forth in Schedule 10 (Service Level Requirements);

(b) provide remote support and maintenance for all distributed infrastructure elements and systems contained within the Sites consisting primarily but not limited to network switches, NAS devices and wireless access points;

(c) perform routine remote administration and maintenance of the distributed infrastructure, and to this effect shall:

(i) undertake preventive and corrective maintenance in order for all systems to function and services to be delivered;

(ii) ensure that all problems are raised and logged centrally; and

(iii) prepare and update standard operating procedures (SOPs).

(d) coordinate with Third Party vendors as needed to perform these activities.

4.2. Distributed Network Support and Maintenance

Network support and maintenance are the activities associated with the provisioning and day-to-day management of the core network infrastructure.

Contractor shall:

(a) Perform proactive maintenance on distributed network infrastructure components in line with the equipment manufacturers' and/or UNHCR guidelines and ensure that firmware is kept current and security patches are applied. For these purposes, network equipment components include:

(i) distribution hubs and switches;

(ii) Wireless Access Points; and

(iii) other LAN services and components comprised of monitoring software and scripts, networking protocols, address management, and name resolution services.

(b) provide on-demand remote support for the installation / de-installation and testing as needed;

(c) ensure that any proactive maintenance action leading to a scheduled outage or a noticeable degradation of service is planned via the Change Control Procedure in in order to minimize disruption to the service;

(d) develop Network Operations Policies that meet UNHCR requirements and adhere to UNHCR policies;

(e) develop and recommend standard Network Operations Procedures for UNHCR approval; maintain the Approved Network Operations Procedures manual;

(f) provide on-demand support for Network Operations activities for in scope equipment including any break-fix activities;

(g) manage and respond to Services Requests and provide remote support for IMACs;

(h) coordinate proactive network administration activities through defined Change Management processes;

(i) allocate distributed network device IP addresses when necessary and maintain the register of used and available IP addresses at each site; and

(j) Manage and support Wireless Access Points.

4.3. Distributed Network Monitoring and Event Management

Contractor shall provide Network Monitoring activities associated with the proactive monitoring and alerting of network performance and management information, as follows:

(a) For distributed network devices in scope, monitor health and utilization, covering ports, CPU, memory, temperature, power, and other relevant metrics or error levels unless otherwise agreed upon by UNHCR;

(b) create automated Incident tickets for events that exceed UNHCR agreed thresholds;

(c) perform remote core LAN analysis diagnostics and remote troubleshooting; and

(d) manage Service Requests and coordinate local ICT resources as directed by UNHCR.

5 Implementation of Site Services

Contractor shall:

(a) Support actively support the development of new Site Server and Network Management services. Such new services shall be added to the Services in accordance with the Change Control Procedure; and

(b) follow the agreed ICT Project and Governance process in the delivery of new services. Contractor shall be involved in all aspects of the service development and will provide work and cost estimates as part of the approval process.

6 Maintenance Windows

Contractor shall:

(a) Perform Site Server and Network maintenance (hardware and software) at lower usage periods (e.g. nights or weekends) wherever possible and in mutual agreement with UNHCR, in order to minimize the impact on operations. All Site Server and Network maintenance services shall be part of the base service fees and UNHCR shall not incur any additional costs (e.g. overtime) for the performance of the Services during lower usage periods; and

(b) all changes to the systems (hardware and software) should be based on an approved Change (or emergency Change). Contractor is expected to follow the established UNHCR Change Advisory Board (CAB) and ITIL procedures when implementing a Change through the Change Control Procedure.

7 Out of Scope Site Services

The Parties agree that the following services are not within the scope of the Services, unless otherwise provided in a Statement of Work or other Contract Modification:

(a) Site hosting;

(b) touch labour, touch labour for backup media, touch labour for local diagnostics;

(c) local asset management;

(d) application support;

(e) desktop support (except as otherwise provided in Schedule 5 (End User Device Services);

(f) project management;

(g) licenses and license management;

(h) equipment;database management;

(j) backup media or procurement of additional backup media;

(k) WAN transport layer ownership;

(l) any floor cabling and wiring. However, Contractor shall co-ordinate for floor cabling and wiring if any by leveraging UNHCR's sub-contractors; and

(m) large scale upgrade / roll-outs.